

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-22 (canceled)

Claim 23 (new): A frequency shifted laser radiation source for distance measurements, comprising:

a frequency shifted feedback laser resonator having a pumped gain medium therein so as to emit laser light having a plurality of frequency components changing with time in a chirping manner for irradiation of an object with laser light radiation;

the laser radiation being usable for determinations of distances of objects when using an object detection sensor which receives laser light radiation coming from an object illuminated with the emitted light and being at a distance to be determined and laser light radiation not coming from the object is brought to interference so as to detect a beat signal of the plurality of frequency components that change with time in a chirping manner and which are comprised in the laser light radiation coming from the object at the distance to be determined interfering with the plurality of frequency components that change with time in a chirping manner and which are comprised in the light radiation not coming in from the object and to allow for the determination of the distance of the object from the beat signal;

wherein the frequency shifted feedback laser radiation source further comprises a means for injection of narrow banded non-pumping seed laser light into the resonator and a means for modulation for adjusting the narrow banded seed laser light and the chirp rate to one another such that for a given distance the intensity of the beat signal is increased.

Claim 24 (new): The laser radiation source according to claim 23, wherein the means for modulating is a means for modulating the seed laser light.

Claim 25 (new): The laser radiation source according to claim 24, wherein the means for modulating the seed laser light is a means for amplitude modulation of the seed laser light.

Claim 26 (new): The laser radiation source according to claim 24, wherein the means for modulating the seed laser light is a means for phase modulation of the seed laser light,

Claim 27 (new): The laser radiation source according to claim 23, wherein the seed light has a wavelength close to the wavelength where the gain of the pumped gain medium is unity so that amplification of the seed laser light occurs at latest after a few resonator round trips.

Claim 28 (new): The laser radiation source according to claim 23, wherein the means for modulation is adapted to vary the modulation frequency around a signature frequency of

$$\delta\nu = \alpha \times c \times \delta_1,$$

wherein

α = chirp rate,

c = speed of light, and

δ_1 = distance to be determined.

Claim 29 (new): The laser radiation source according to claim 28, wherein the modulation frequency is periodically varied around the signature frequency of $\delta\nu = \alpha \times c \times \delta_1$.

Claim 30 (new): The laser radiation source according to claim 23, wherein the means for modulation is adapted to vary the modulation frequency periodically linear with time.

Claim 31 (new): The laser radiation source according to claim 23, wherein the means for injection of seed laser light is an injection laser adapted to increase the beat intensity of the frequency shifted laser emitted frequency components at the object sensor beyond the intensity which can be obtained with spontaneous emission in the resonator of the frequency shifted feedback laser only.

Claim 32 (new): The laser radiation source according claim 32, wherein the injection laser injects the non-pumping injection laser light into the gain medium of the frequency shifted feedback laser.

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Claim 33 (new): The laser radiation source according claim 32, wherein the injection laser has a frequency width of less than 5 % of the gain of the frequency shifted feedback laser radiation gain medium.

Claim 34 (new): The laser radiation source according claim 33, wherein the injection laser is a single mode laser.

Claim 35 (new): The laser radiation source according claim 34, wherein the gain medium of the frequency shifted feedback laser is an optical fiber internal to the resonator and/or constituting the resonator.